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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,809	11/24/2003	Jin Young Kim	6661-0000211/US	3473
30/593	7/5/01	10/29/2008		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195				
EXAMINER				
CHACKO DAVIS, DABORAH				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
10/29/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/718,809

**Applicant(s)**

KIM ET AL.

**Examiner**

DABORAH CHACKO DAVIS

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, and 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 2001-221908 (Furuya) in view of U. S. Patent No. 6,184,403 (Welch et al., hereinafter referred to as Welch).

Furuya, in the abstract, discloses an organic metallic composition comprising the claimed metal complexes, wherein the metallic complexes include Ag, and Au and one of Cu or Ti or Ta, and that the metals in the metallic complex is further complexed with organic compounds.

The difference between the claims and Furuya is that Furuya does not disclose that the metal complexed organic compound i.e., the organometallic compound has the claimed neutral ligand with photosensitivity. Furuya does not disclose that the organic-metal complex includes the anion recited in claims 1, and 11. Furuya does not disclose that the organic film complexed with the metal includes the neutral ligand recited in claim 2.

Welch, in the abstract, and in col 2, lines 15-67, and in col 3, lines 21-55, in col 4, lines 27-67, discloses that the organo metallic compounds includes a neutral metallic ligand such as NR<sup>9</sup>, wherein R<sup>9</sup> comprises an alkyl group, and a nitro or carboxylate

anion, and discloses a neutral ligand that has the claimed no. of carbon atoms, and a donor such as nitrogen or sulfur and is therefore inherently sensitive to light exposure (i.e., photosensitive). Welch, in col 8, lines 22-24, discloses that the composition is can be patterned (via decomposition or conversion to metal oxide) via exposure to a laser at suitable wavelengths i.e., the composition is photosensitive.

Therefore, it would be obvious to a skilled artisan to modify Furuya by employing the organic ligands and anions suggested by Welch in the organo-metal complex because Welch, in col 1, lines 66-67, and in col 2, lines 1-4, discloses that the addition of the claimed ligands in the metal complex induces higher volatility in the organo metallic compound, and enables stability of the organo metal complex at the sublimation point, and retains desirable processing features.

### ***Response to Arguments***

3. Applicant's arguments filed July 8, 2008, have been fully considered but they are not persuasive. The 103 rejection of claims 1-2, and 11, made in the previous office action (paper no. 20080327) is maintained.

A) Applicants argue that Furuya does not disclose organometallic compounds and that the starting materials i.e., the NR<sup>9</sup> is not a neutral metallic ligand, and are different from that claimed in claims 1, and 11.

Furuya discloses the claimed organometallic compounds, and provides an alloy of Ag with Au and Pd with a total wt. % of about 3.0 wt. %, and further includes at least Cu at a wt. % of about 3.0 wt.%. Furuya complexes the metallic complexes with the

organic base composition film 8 (to form the layer 3) on the substrate to form the organometallic composition layer (see the figure on the abstract page, reference 3, on the substrate (reference 1)) and therefore forms the claimed organometallic composition. Welch is depended upon to disclose the claimed ligands, and anions present in the organometallic composition, and is discussed in paragraph B), below.

B) Applicants argue that Welch does not disclose that the volatility of the ligands of claims 1, and 11 is due to photosensitivity and that neither Furuya nor Welch disclose a neutral metallic ligand having photosensitivity, and that Welch's organometaloid is less sensitive to light than the organometallic compounds of example embodiments.

Furuya is not depended upon to disclose the claimed ligand with photosensitivity. Welch, in col 2, lines 1-67, in col 3, lines 15-67, in col 4, lines 27-67, discloses organometallic compositions that has a neutral ligand Y, and Z that has the formula  $NR_9$  wherein  $R_9$  is an alkyl (at least one carbon atom) i.e., the composition discloses the same ligand as claimed; the claims recites that the neutral ligand comprises 1-20 carbon atoms and a donor selected from the group consisting of N, P, O, S, and As; and Welch discloses more than one carbon atom, and a donor such as nitrogen, and is therefore inherently sensitive to light (photosensitive). Additionally, Welch, in col 8, lines 18-24, discloses that the metal organic complex composition is photoactive or photosensitive (photolytic i.e., can be decomposed) and is effected upon exposure to laser at a suitable wavelength i.e., the composition with the ligands are volatile in the presence of light (at suitable wavelengths), and is therefore photosensitive to light. Also, the claims do not recite or suggest a photosensitive value or a range of

photosensitivity. The claims, as cited in lines 5-6, of this paragraph (argument B)) recite that the neutral ligand is photosensitive, and as explained above, Welch's neutral ligand is also photosensitive. Furthermore, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., example embodiments do not require a CVD process, and organometalloid compounds of Welch being less sensitive to light than the organometallic compounds of example embodiments) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

#### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daborah Chacko-Davis/  
Examiner, Art Unit 1795

October 27, 2008.